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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,972	09/22/2003	Hong Sung Song	8733.893.00	4974

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MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER

LESPERANCE, JEAN E

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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07/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/664,972

Applicant(s)

SONG ET AL.

Examiner

Jean E. Lesperance

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on July 6, 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed July 6, 2007 is entered and claims 1-15 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 5-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,160,535 (Park) in view of USPN 6,204,520 (Ha et al.).

Regarding claim 1, Park a plurality of pixels arranged in a matrix Fig.3A (300) wherein the gate lines (G1...Gm) crossing a plurality of data lines (S1.....Dd) and wherein the data lines defining a plurality of columns of the matrix;

a thin film transistor Fig.3A (TFT) at each of the liquid crystal cells, each thin film transistor (TFT) connected to the data lines (S1.....Dd) in an alternating pattern wherein first thin film transistors (the TFT connected to the pixel electrode R11) of each column of the matrix are connected to one data line (S1) of the plurality of data lines (S1.....Dd)

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and second thin film transistors (the TFT connected to the pixel electrode R21) of the column of the matrix are connected to another data line (S2) of the plurality of data lines(S1.....Dd) adjacent to the one data line (S1);

a data driver (not shown) connected to the data lines Fig.3A (S1....Sd) that supplies a video signal to drive the liquid crystal cells connected to the first thin film transistors Fig.3A (TFT) via the one first to (n 1)th data line (S1) and to drive the liquid crystal cells connected to the second thin film transistors Fig.3A (3A) via the another data line_second (S1)to nth data lines;

a pixel electrode Fig.3A (R11) associated with each of the liquid crystal cells. Accordingly, the prior art teaches all the claimed limitations with the exception of providing an interlayer-insulation material formed by an organic insulation film having a dielectric constant less than about 4 and located between the data line and the pixel electrode associated with each of the liquid crystal cells.

However, Ha et al. teach the pixel electrode with the data line by means of inserting an organic insulating layer of a low dielectric constant between the data line and the pixel electrode (column 10, lines 63-66) wherein having a dielectric constant less than about 4 is design choice.

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the dielectric constant as taught by Ha et al. in the display panel disclosed by Park because this would provide a data line in the TFT of the BBC structure having low resistance applicable to a wide-screen by means of increasing the thickness of both the buffer layer and the source/drain line (column 2,

lines 61-65).

Regarding claim 5, Park teaches the pixel electrode Fig.3A (R11) is overlapped with more than one of the data lines Fig.3A (S1....Sd) adjacent thereto.

Regarding claim 6, Park teaches the pixel electrode Fig.3A (R11) is overlapped with more than one of the gate lines formed adjacent thereto Fig.3A (G1.....Gm).

Regarding claim 7, Park teaches the pixel electrode Fig.3A (R11) is overlapped with the thin film transistor Fig.3A (R11).

Regarding claim 8, Park teaches the pixel electrode Fig.3A (R11) is overlapped with the thin film transistor Fig.3A (R11).

Regarding claim 9, Park teaches the pixel electrode Fig.3A (R11) is overlapped with more than one of the gate lines adjacent thereto Fig.3A (G1.....Gm).

Regarding claim 10, Park teaches the pixel electrode Fig.3A (R11) is overlapped with the thin film transistor Fig.3A (R11).

Regarding claim 11, Park teaches the pixel electrode Fig.3A (R11) is overlapped with the thin film transistor (TFT).

Regarding claim 12, Park a plurality of pixels arranged in a matrix Fig.3A (300) wherein the gate lines (G1...Gm) crossing a plurality of data lines (S1.....Dd) and wherein the data lines defining a plurality of columns of the matrix;

a thin film transistor Fig.3A (TFT) at each of the liquid crystal cells, each thin film transistor (TFT) connected to the data lines (S1.....Dd) in an alternating pattern wherein first thin film transistors (the TFT connected to the pixel electrode R11) of each column of the matrix are connected to one data line (S1) of the plurality of data lines (S1.....Dd)

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and second thin film transistors (the TFT connected to the pixel electrode R21) of the column of the matrix are connected to another data line (S2) of the plurality of data lines(S1.....Dd) adjacent to the one data line (S1);

a data driver (not shown) connected to the data lines Fig.3A (S1....Sd) that supplies a video signal to drive the liquid crystal cells connected to the first thin film transistors Fig.3A (TFT) via the one first to (n 1)th data line (S1) and to drive the liquid crystal cells connected to the second thin film transistors Fig.3A (3A) via the another data line_second (S1)to nth data lines;

a pixel electrode Fig.3A (R11) associated with each of the liquid crystal cells, the pixel electrode Fig.3A (R11) having a rectangular shape (see Fig.3A). Accordingly, the prior art teaches all the claimed limitations with the exception of providing an interlayer-insulation material formed by an organic insulation film having a dielectric constant less than about 4 and located between the data line and the pixel electrode associated with each of the liquid crystal cells.

However, Ha et al. teach the pixel electrode with the data line by means of inserting an organic insulating layer of a low dielectric constant between the data line and the pixel electrode (column 10, lines 63-66) wherein having a dielectric constant less than about 4 is design choice.

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the dielectric constant as taught by Ha et al. in the display panel disclosed by Park because this would provide a data line in the TFT of the BBC structure having low resistance applicable to a wide-screen by means of

increasing the thickness of both the buffer layer and the source/drain line (column 2, lines 61-65).

Regarding claim 13, Park teaches the pixel electrode Fig.3A (R11) is overlapped with a data line Fig.3A (S1).

Regarding claim 14, Park teaches the pixel electrode Fig.3A (R11) is overlapped with a gate line Fig.3A (G1).

Regarding claim 15, Park teaches the pixel electrode Fig.3A (R11) is overlapped with a gate line Fig.3A (G1), a data line Fig.3A (S1) and the thin film transistor Fig.3A (TFT).

4. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,160,535 (Park) in view of USPN 6,204,520 (Ha et al.) and further in view of USPAN 20030223030 (Byun et al.).

Regarding claims 2-4, Park and Ha et al. fail to teach the interlayer-insulation material includes a benzocyclobutene (BCB) , wherein the interlayer-insulation material includes an acryl resin and wherein the acryl resin includes a photo acryl (P/A).

However, Byun et al. teach A gate insulating layer 15 is formed on an entire face of the substrate including the gate electrode 11a and gate line 11 using silicon nitride (SiN.sub.x), silicon oxide (SiO.sub.x), BCB (benzocyclobutene), acryl resin, or the like, and an island-like semiconductor layer 13 is formed on the gate insulating layer 15 over the gate electrode 11a using a-Si and n+ a-Si. In this case (paragraph 0129) and when the alignment direction is formed utilizing a photo-alignment method, the photo-

irradiation direction or the polarization direction of irradiated light may be considered as being a factor having influence on the dispensing pattern (0388) wherein the photo-irradiation is interpreted as the photo acryl.

Thus, it would have been obvious to a person of ordinary skill at the time the invention was made to utilize the insulating layer as taught by Byun et al. in the combination system of Park and Ha et al. because this would provide a system for fabricating a liquid crystal display (paragraph 0031).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chung et al. also teach each of the spacers 12 is a column spacer of an organic resin material such as photo-acryl resin, for example, that may be formed on the first substrate 20 by exposing and developing processes, for example. The seal pattern 10 may be formed of a thermo-hardening resin, a photo ultraviolet hardening resin, and a thermo- and photo-hardening resin (column 4, lines 2-34).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (571) 272-7692. The examiner can normally be reached on from Monday to Friday between 10:00AM and 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691.

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

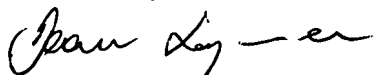
or faxed to:

(571) 273-8300 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jean Lesperance



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Date 7/19/2007



RICHARD AJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600